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ABSTRACT

In this monograph, the authors describe Connecticut's long-term efforts to implement a comprehensive set of teaching quality policies to support improved student learning. The authors begin by describing the 15-year evolution of policies designed to recruit, prepare, and support teachers, while also creating greater accountability for the acquisition of knowledge and skills on the part of both students and teachers. That description is followed by a summary of the large concomitant gains in student achievement in both mathematics and literacy and an evaluation of competing explanations for these gains. The authors conclude by hypothesizing that the power of Connecticut's teaching policy reforms lies not simply in their comprehensiveness and in the state's political stability over the last decade, but also in the power of the policies to build capacity in all participants: teachers, students, administrators, teacher educators, and state department staff alike. Goals and expectations are appended. (Contains 57 references.) (Author/SM)

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A Case of Successful Teaching Policy:

Connecticut's Long-Term Efforts to Improve Teaching and Learning

A Research Report

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GLOSSARY OF ACRONYMS

BEST	Beginning Educator Support and Training Program
CAPT	10th grade Connecticut Academic Performance Test
CCI	Connecticut Competency Instrument, a generic classroom observation used in observing all beginning teachers.
CCL	Connecticut's Common Core of Learning, a set of expectations for what students will know and be able to do.
CCT	Connecticut's Common Core of Teaching, a set of expectations for what teachers should know and be able to do.
CMT	Connecticut Mastery Tests, a traditional standardized test used statewide to assess student achievement.
CONNCEPT	Connecticut Competency Examination for Prospective Teachers, a basic skills test of reading, writing and mathematics required of all prospective teachers.
CSDE	Connecticut State Department of Education

ABSTRACT

In this monograph, the authors describe Connecticut's long-term efforts to implement a comprehensive set of teaching quality policies to support improved student learning. The authors begin by describing the 15-year evolution of policies designed to recruit, prepare, and support teachers, while also creating greater accountability for the acquisition of knowledge and skills on the part of both students and teachers. That description is followed by a summary of the large concomitant gains in student achievement in both mathematics and literacy and an evaluation of competing explanations for these gains. The authors conclude by hypothesizing that the power of Connecticut's teaching policy reforms lies not simply in their comprehensiveness and in the state's political stability over the last decade but also in the power of the policies to build capacity in all participants: teachers, students, administrators, teacher educators, and state department staff alike.

INTRODUCTION

In the past five years, over 25 states have enacted legislation to improve teacher recruitment, education, certification, or professional development. In large measure, this increased policy activity surfaced in response to new and ambitious student standards and growing evidence suggesting that well-qualified teachers make a difference for student learning at the classroom, school, and district levels (Darling Hammond, 1997a; National Commission on Teaching and America's Future (NCTAF), 1996; National Education Goals Panel (NEGP), 1999). While policymakers are now more attuned to the links between teacher development and student achievement, there has been little inquiry into the role of states in creating and sustaining effective teacher policies and practices or into the role of mediating organizations that implement and shape such policy (Timar, 1997).

The purpose of this case study is to describe the efforts of one state—Connecticut—as its educators, elected officials, and state department of education (CSDE) pursued a purposeful and comprehensive teaching quality agenda for more than a decade. Large, steady gains in student achievement and a plentiful supply of well-qualified teachers are two major outcomes of this agenda. The Connecticut case is a story of how bipartisan state policymakers initiated and sustained a coherent policy package linking school finance reform equalization and challenging expectations for students to teacher salary increases, teacher licensing and re-certification reforms, and a teacher support and assessment system guided by student and teaching standards. Rather than pursue a single silver bullet or change strategies every few years, Connecticut made ongoing investments in improving teaching through high standards and high supports and through a coherent connection to student learning.

WHY STUDY CONNECTICUT?

Connecticut's efforts have been especially noteworthy for their scope and intensity, and they have had substantial payoffs in steeply rising student achievement gains. By 1998, Connecticut's fourth-grade students ranked first in the nation in reading and mathematics on the National Assessment of Educational Progress (NAEP), despite increased student poverty and language diversity in the state's public schools during that decade (NCES, 1997; NEGP, 1999). In addition, the proportion of Connecticut eighth graders scoring at or above proficient in reading was first in the nation. Connecticut was also the top performing state in writing, and the only one to perform significantly better than the U.S. average. A 1998 study linking the NAEP with the Third International Math and Science Study (TIMSS) found that, in the world, only top-ranked Singapore outscored Connecticut students in science (Baron, 1999). While there remains an achievement gap between white students and the large and growing minority student population, Black and Hispanic students—who comprise more than 25 percent of Connecticut's students—substantially outperformed their counterparts nationally as well (Baron, 1999).

In explaining Connecticut's reading achievement gains, a recent National Educational Goals Panel (NEGP) report (Baron, 1999) cited as a critical element the state's teacher policies, especially those associated with its beginning teacher assessment and support system. The NEGP report noted that the Beginning Educator Support and Training (BEST) program utilizes large numbers of state-trained mentors, classroom assessors, and portfolio scorers who are required to learn about the state's expectations for beginning teachers in order to support and evaluate their work. By systematically educating mentors who support and evaluate novice teachers, the support system has increased capacity in beginners and veterans alike.

Embedded in state teacher assessment policy, such processes can have far-reaching effects. By one estimate, more than 40 percent of Connecticut's teachers have served as assessees, assessors, mentors, or cooperating teachers. As the teacher assessment system becomes more tightly linked to student content standards, the influence of these strategies is likely to increase. By the year 2010, 80 percent of the state's elementary teachers—and nearly as many secondary teachers—will have participated in the new subject matter-specific portfolio assessment system as candidates for licensing, mentors, or assessors. This is the most ambitious effort undertaken in any state to use high leverage, performance-based assessments of teaching as a lever for transforming practice across an entire state. Thus, in many ways, the case of Connecticut's reforms is a story focused on purposeful capacity building throughout the educational system, driven by pointed attention to teaching quality and creative use of the policy levers available to states for upgrading education.

This case study reveals that strong and consistent political and administrative leadership, accompanied by investments in CSDE research and development capacity, enabled the creation and support of interwoven policies and programs linking teacher development and student achievement. Further, the Connecticut case shows how investments in teaching quality have supported the alignment of performance-based teacher and student standards, including one of the most comprehensive, coordinated, and rigorous three-tiered teacher licensure and development programs in the nation. Student standards and assessments that followed the introduction of teaching reforms were carefully constructed to ensure that learning goals for children were supported by the knowledge and skill expected in their teachers.

The ambitious nature of this reform is not its only important feature. Connecticut's approach to educating a wide range of stakeholders about the need for a highly qualified teaching force and its strategy for developing both a policy consensus and institutional capacity are also noteworthy. Cohen (1995) argued that the reformers of the 1980s and 1990s sorely underestimated the need for "a public education about public education." He argued that the complex school reforms that characterized the last 20 years of the twentieth century entailed considerable learning on the part of all stakeholders. Teachers and students had much to learn, as did policymakers and politicians, school board members, university faculty, and even state department staff. The Connecticut policies were designed to enable learning. New teachers learned from analyzing their own practice; mentors learned from working with novices. CSDE staff members learned through gathering and analyzing data about their various policies and practices. The policies that were designed to enable teaching quality were themselves educative agents. We return to this point at the article's end.

We note two important themes in Connecticut's story of reform. First, this is a story of policy alignment around the quality of teaching; it illustrates what can happen when policies concerning teacher education and professional development, teacher and student standards, and assessments of teaching and learning work together to a common end. Second, such investment and alignment do not happen over night, and so this is also a story of "steady work," of state department staff collaborating with teachers and principals to craft, revise, and revise again the policies that form the backbone of Connecticut's reforms. As one set of policies focused on teacher improvement took root, other policies focused on student standards, assessments, and system improvement were then added to mix. Gradually over 15 years, a comprehensive system of aligned, well-supported, and well-tested policies emerged.

We could simply tell a story of the system that currently exists in Connecticut. But this would miss the point, for any lessons to be learned from the state's experiences depend on understanding how the system was built over time. We tell the story as it was woven through two interlocking strands: the development of teacher and teaching quality and the development of student standards and assessments tied to investments

in systemic change. The two contrapuntal emphases emerging from a focus on teaching and learning have together created an extraordinarily strong and vibrant educational tapestry in Connecticut.

Methods and Procedures

We began our inquiry by collecting relevant documents, including minutes from state board meetings, draft policies, publications from the CSDE, newspaper articles, and internal memos. We also collected research that had been conducted on the policies by the CSDE research and evaluation department and external studies conducted by independent researchers and agencies like the National Education Goals Panel. These studies included expert and stakeholder interviews at the state and local levels, analyses of student achievement and other data, surveys, reports of focus group interviews, and validation and reliability studies of various instruments described in this essay. Finally, we conducted interviews with key CSDE staff members, with teacher education faculty, and with teachers and administrators in one urban district in Connecticut. We analyzed these materials by triangulating data from different sources, developing hypotheses which were then tested through iterative examination of the data, and developing themes that were supported by consistent evidence (Miles and Huberman,1985; Glaser and Strauss, 1967) as we crafted this narrative of the last 20 years of the CSDE's efforts.

A Teacher's Eye View of Connecticut's Reforms

We begin by painting a picture of what Connecticut's reforms mean for the preparation and induction of a beginning teacher in the state:

> By the time Teresa completed her second full year of teaching, she impressed her principal and peers with her professional composure and ease. Her newfound professionalism was hard won, however. As an undergraduate, while she was working through her bachelor's degree in mathematics and courses in her rigorous teacher education program at the University of Connecticut, she'd had to take a series of tests to prove her mastery of basic knowledge and skills, as well as content examinations to prove she knew her subject matter well.
>
> After two years of practicum work in schools during her junior and senior years, alongside courses in learning and development, curriculum and assessment, teaching methods, special education, literacy, and a full semester of student teaching, she completed a half-time teaching internship in her fifth year. During this placement with an expert cooperating teacher at East Hartford High School, a professional development school, Teresa conducted action research on the efforts currently underway to meet the new student standards as they are reflected on the state mathematics assessment. She also studied teacher leadership, school reform, ethics of teaching, and took another course on the teaching of students with special needs as part of her master's degree.
>
> She was supported throughout this process not only by her mentors and instructors, but also by the generous state scholarship she'd received to underwrite her preparation on the condition that she teach in a high-demand location in Connecticut.
>
> On the day her beginning certificate entitling her to teach arrived in the mail, Teresa felt some pride at her considerable accomplishments, but she also was anxious about the assessments to come. Her friends who taught in other states were receiving professional licenses, but Teresa had permission

to teach in Connecticut for two years only. During this time, she had to build a portfolio that would prove she could use all the knowledge and skills she acquired as a student and apply them in her own classroom.

Teresa was a busy woman during her first two years as a teacher and frequently felt overwhelmed. She met regularly with her mentor, an experienced teacher who herself had gone through an earlier version of this same beginning teacher assessment program. They talked about her teaching plans, about how things went, and about what materials she might include in her portfolio. Her mentor often visited Teresa's classroom and taught one of the regional seminars on constructing a portfolio. While these seminars stole precious time from Teresa's already crowded professional calendar, she was grateful for them, for there she met and talked with many colleagues who were also preparing their portfolios. She also found that the daily reflective journals she had to keep for several weeks as part of the unit she would include in her portfolio helped her to think about what was working in her classroom and what she would change to better meet her students' needs. It pushed her, she felt, to think about teaching in terms of her students' learning.

When she submitted her materials to be judged by state assessors in the spring of her second year, Teresa knew she was going to pass. She'd spent many a night watching videotapes of her own teaching, analyzing her students' writing, drafting explanations and rationales for what she had done and what students had learned, and critiquing curricular materials. It had been hard going and, yes, she'd done her fair share of complaining about all of these rites of passage. But now she understood why Connecticut was so wedded to these new assessments: She could see how much she had grown as a teacher in these early years, and she looked forward to helping other new teachers learn to critically appraise their teaching and justify it to other professionals.

How the system evolved that creates such an unusually auspicious launch to a professional teaching career is the first part of our story.

THE ORIGINS OF CONNECTICUT'S TEACHER POLICY REFORMS[1]

Early Foundations

A central challenge in historical analyses involves determining where a story begins and ends. This case is no different, for the roots of Connecticut's contemporary education reforms efforts are entrenched in the state's culture, its tradition of local control, and the administrations of several commissioners of education as well as governors of both parties. We begin with foundations established by Mark Shedd, the commissioner of education from 1974 to 1983.

Described by long time insiders as "visionary," Shedd re-invented the CSDE as a proactive agency (Fisk, 1999). He led the CSDE's development of a well-articulated plan for the collection, analysis, and subsequent use of data to inform educational decision-making. He actively sought out talent, recruiting staff from leading research universities, some with national reputations, many of them young and early in their careers. Using their enthusiasm and intelligence, he began building CSDE capacity to design and implement educational policies, as well as to conduct relevant research and evaluation.

Shedd was able to pursue this agenda, in large part, due to the 1974 *Horton v. Meskill* case that found that Connecticut's public education funding system compromised the state's capacity to provide a high quality education for all children.

Data collection and analysis were seen as central to making informed decisions about education quality and equality, and the case eventually led both to the revision of Connecticut's school finance system and the enhancement of state and local capacity to plan, implement, and evaluate school programs. In addition, the decision was much more focused on teachers and other resources for schooling than other equity lawsuits had been, thus providing a catalyst for much of what happened thereafter. The lawsuit identified the State's 14 most needy school districts (determined by both low-income and low-achieving status) and identified them as Priority School Districts, providing them with additional resources through a series of categorical grants.

Shedd also targeted teachers as the critical lever for reform. In the late 1970s, he sponsored a committee that reviewed issues of teacher professional development (Fisk, 1999). In 1981, that committee issued a report that targeted four critical teacher quality issues: recruitment, initial preparation, induction, and on-going professional development. Subsequently, five other committees were established to make more focused recommendations: a Distinguished Citizens Task Force on Quality Teaching, a Certification Advisory Council, a Committee on the Revision of Procedures and Standards for Program Approval, a Professional Development Committee, and a committee to address issues of Teacher Standards and Assessment.

Shedd resigned in January of 1983 and was replaced by Gerald Tirozzi, who would later serve as the U. S. Assistant Secretary for Elementary and Secondary Education during the Clinton Administration. Fisk (1999) quotes an informant: "Mark Shedd handed Gerald Tirozzi more fodder for change on a silver platter than any other commissioner has handed his successor" (p. 106). The time was right for reform: *A Nation at Risk* (National Commission on Excellence in Education, 1983) had been issued on the day Tirozzi took office; the state's economy was growing and there was a budget surplus; and Shedd's reforms, including a ninth grade proficiency exam, had laid the groundwork for a more comprehensive school reform package.

Continuing the Work

Building on Shedd's legacy, Tirozzi almost immediately issued *Connecticut's Challenge: An Agenda for Educational Equity and Excellence* (CSBE, 1984), which recommended higher standards for high school graduation; changes in teacher preparation and certification; improved teacher professional development; longer kindergarten classes and lower mandatory school ages; improved remedial, vocational, and adult education; requirements for local homework and attendance policies; and mastery tests for fourth, sixth, and eighth graders used as low-stakes tools for increasing information to local districts. The plan called for a "balanced equation": raise teachers' salaries and raise the standards by which they are prepared and held accountable.

Tirozzi had a clear, coherent vision, and the CSDE had the capacity to create, implement, research, and evaluate its new instruments of reform (new assessments for teachers and students, for example). Tirozzi asked then Governor William O'Neill to create a Commission on Equality and Excellence in Education (CEEE) to be supported by the CSDE. At the same time, Governor O'Neill committed $20 million of the state's surplus to a "trust fund" for educational excellence.

In a move that was part serendipity, part strategy, Arthur Wise, then director of the RAND Corporation's Center for the Study of the Teaching Profession, was hired as chief consultant to the CEEE. In so doing, Connecticut tied itself to a national agenda for education reform, for Wise was a highly visible member of a growing national discourse concerning teacher professionalism (see, for example, Carnegie Forum on Education and the Economy, 1986). The CEEE's report, *Teachers for Today*

and Tomorrow (1985), proposed a two-pronged approach, focused on incentives and standards for teachers. Incentives included statewide supports for a higher minimum salary that was more equal across districts; a voluntary state-funded program to increase teachers' salaries; teacher recognition programs; local grant funds for career ladders; differentiated staffing; induction for beginning teachers; and a teacher-in-residence program in higher education (Fisk, 1999, pp. 113-114). Standards would include changes in certification requirements, statewide teacher assessment, and local teacher evaluation processes, as well as the implementation of a fifth-year teacher education program. The report eventually led to PA 86-1, An Act Concerning Education Enhancement (EEA), and a subsequent bill PA 86-147, An Act Concerning the Phase-In of Testing for Beginning Teachers.

The Education Enhancement Act and its companion legislation:

- raised and equalized teacher salaries across districts, providing state salary aid to reach a target minimum for the salaries of fully-certified teachers;
- increased licensing standards by requiring more teacher training at entry, including a major in the field to be taught, more focused study of learning and teaching, greater preparation to teach special needs learners, and the passage of basic skills and content tests;
- enacted scholarships and forgivable loans to attract high-ability candidates into teacher education at the undergraduate and graduate levels and to encourage candidates to teach in priority schools and shortage fields;
- facilitated entry for well-trained teachers from out-of-state;
- eliminated emergency licensing;
- toughened requirements for temporary licenses, granting them only to trained teachers seeking a second license or endorsement or entering from out-of-state;
- created a staged licensing process that included a beginning teacher program for all new teachers and a master's degree for securing a professional license;
- required and funded trained mentors for all beginning and student teachers;
- required on-going professional development for a professional license (30 credits at the graduate level, later increased to a master's degree) and for license renewal (nine credits every five years); and
- required districts to develop professional development plans, career incentive plans, and teacher evaluation systems, and then partially funded implementation of the plans, plus evaluation and dissemination of the most effective models.

A three-tiered teacher certification system was established, including levels of beginning, provisional, and professional certification. First-year teachers, armed with stronger teacher preparation and a one-year beginning certificate, were required to participate in a support and assessment system that eventually became known as Beginning Educator Support and Training Program (BEST). The standard certificate was replaced with a renewable "professional certificate," contingent on a teacher's continued commitment to professional development.

At the same time, teacher salaries were raised in local negotiations through "salary grants" that provided state aid to local school districts. The average teacher's salary increased from a 1986 average of $29,437 to a 1991 average of $47,823 (Fisk, 1999; Prowda, 1998). These grants were provided on an equalizing basis to enable poor districts to better compete in the market for qualified teachers. Districts were given incentives to hire qualified teachers because salary grants were calculated on the basis of fully certified teachers only, and emergency credentials were phased out.

To further ensure an adequate supply of qualified teachers, the state offered incentives including scholarships and forgivable loans to attract high-ability teacher candidates and to encourage well-qualified teachers from other states to come to Connecticut.

The Education Enhancement Trust Fund, which had risen to $300 million, was used to raise the salaries gradually. Although this created a challenging legacy for local school districts when the Trust was depleted and a recession hit in the early 1990s, public commitment to the reforms and Connecticut's improving education system, as well as increases in general state aid, helped the reforms survive. Within only three years of the reforms, Connecticut went from shortages to surpluses of teachers (Connecticut State Department of Education, 1990). Evidence of growing quality was encouraging to policymakers, and bipartisan confidence in the reforms has allowed the policies to remain in force. In most years, Connecticut continues to rank first or second in the nation in teacher salaries.

Gerry Tirozzi resigned as commissioner in 1991 and was replaced in 1992 by Vincent Ferrandino. Two interim commissioners cycled through the CSDE, and the work on teacher policies continued. Fisk (1999) argues that the legacy of Shedd and Tirozzi included strong CSDE leadership along with deep expertise and capacity to conceptualize, implement, and evaluate reforms. Furthermore, Shedd turned the CSDE into a learning organization (Senge, 1990) where individuals worked alone and together, constantly learning, constantly inquiring into new ways to better do the work of education reform. Both Shedd and Tirozzi empowered staff, including then Chief of the Office of Research, Evaluation, and Assessment Pat Forgione and his collaborator Ray Pecheone, to take charge and "make things happen." And they did. The work on teacher assessment and quality progressed, and new pieces were added to the overall policy puzzle.

While the school funding equalization and teacher salary structure are critically important in understanding the Connecticut reforms, the remainder of this case focuses primarily on the state's teaching policies as they influenced preparation, professional development, and accountability and the state's use of student standards as a framework for targeting supports for district, school, and teacher learning.

A Closer Look at Connecticut's Teaching Policies

Building a System: The First Wave

During the first wave of creating teaching quality policies, the state built the supply of prospective teachers by dramatically increasing salaries and providing large numbers of scholarships to those seeking teacher preparation in high-need fields and for high-need locations. At the same time, the requirements for teacher education were intensified to assure that new teachers would have a stronger background in the content area(s) they would teach and in the strategies needed to teach that content well to diverse students with a wide range of learning needs.

Meanwhile, the CSDE worked on a triad of supports and assessments. These included a test of basic skills and knowledge (CONNCEPT, later replaced by Praxis I), a test of subject matter competence (CONNECT, later replaced by Praxis II), and a performance-based assessment that was accompanied by induction support (the BEST program, later expanded into a portfolio assessment). We describe each briefly.[2]

Basic Skills Testing. In the early 1980s, the CSDE developed a basic skills test of reading, writing, and mathematics: the Connecticut Competency Examination for Prospective Teachers (CONNCEPT). The test was developed in collaboration with National Evaluation Systems (NES). In 1985, it was administered to applicants to

teacher preparation programs; in 1987-88, the requirement was expanded to everyone applying for a teaching certificate. Prospective teachers with a combined SAT score greater than 1000 could apply for a waiver.

With this test, Connecticut made a commitment to admitting into teaching only those who could demonstrate mastery of basic skills and knowledge. In 1985-1986, during its first administration, 62.9 percent of the test-takers passed or were eligible for a waiver. After 1987, about 70 percent of the individuals taking CONNCEPT passed on their first attempt. As the Educational Testing System (ETS) continued its development work in teacher assessment, Connecticut changed its basic skills test to PRAXIS I CBT.

Subject Matter Testing. The state was interested in developing standards that went well beyond the "basics." So it also introduced the use of the National Teacher Examination (NTE) in 23 subject matter areas to assess prospective teachers' content knowledge. A content proficiency examination for elementary teachers—the Connecticut Elementary Certification Test (CONNECT)—was developed in the late 1980s and required as of December 1990. In 1988, about 16 percent of the candidates failed to achieve the minimum score on CONNECT; in 1991, about 30 percent of the first time test-takers failed the CONNECT specialty-area examination for elementary teachers. When it assessed the impact of these new tests on teacher quality in 1992, the Connecticut State Board of Education (CSBE) argued that these statistics demonstrate that the CONNCEPT and CONNECT "have acted as gatekeepers preventing the least-skilled candidates from becoming certified teachers" (CSBE, 1992, p. 3). As ETS has advanced its testing technology, the state shifted to requiring all teachers to take the PRAXIS II content area examinations.

Assessments of Teaching Skill. Most educators in Connecticut agree that the third part of the effort, Connecticut's written and performance-based assessments of teaching, have had the greatest direct effect on teaching practice. At the same time that CONNCEPT and CONNECT were implemented, CSDE staff began developing alternative assessment and support systems. Meanwhile staff members were part of national discussions about similar teacher performance-based assessments, including the Teacher Assessment Project (TAP) at Stanford University (e.g., Shulman, 1987a), the emerging Interstate New Teacher Assessment and Support Consortium (INTASC, 1992), and the fledgling National Board for Professional Teaching Standards.

The cross-fertilization among these projects and groups was substantial. Connecticut collaborated in the development and pilot testing of several teacher performance assessments developed under the auspices of the Stanford Teacher Assessment Project. INTASC has consistently reviewed Connecticut's standards and assessments as it develops its own, often using Connecticut's work as an exemplar. And, for a period of time, the CSDE collaborated on a contract for the development of the NBPTS assessments in English Language Arts. Committed to leading the field in innovation in teacher assessment, CSDE staff members were encouraged to take full advantage of interactions with similar projects nationwide.

As a multi-dimensional work-in-progress, the Connecticut Beginning Educator Support and Training Program (BEST) falls roughly into two overlapping stages of development. More evolution than revolution, the second stage of the teacher assessment system grew out of and elaborated on lessons learned during the first stage, resulting in considerable overlap. For purposes of clarity, we describe each stage briefly.

During the first stage of the BEST, the major instrument of reform was the Connecticut Competency Instrument (CCI), an assessment of generic teaching skills conducted through classroom observations by trained assessors. During the second and current stage, a teaching portfolio was introduced that requires more complex

and subject-specific demonstrations of teaching in relation to student learning, such as videotapes, lesson plans, student work, and reflections on specific teaching activities based on subject-specific standards. Satisfying these requirements is part of the process of acquiring a provisional teaching license, and new teachers are offered multiple means of support to assist them in doing so. The provisional teaching license is the second-stage credential offered en route to a professional license, which requires additional professional development and a master's degree. As the portfolio is coming fully on board as a licensing assessment, the CCI will be phased out.

Connecticut Competency Instrument (CCI). Initial work on the development of the CCI was collaborative, involving CSDE staff, teacher educators, and experienced teachers. The CCI was pilot tested in 1988 and has been closely monitored since. Like teacher observation instruments introduced in several other states during the early 1980s, the instrument sought to measure essential generic teaching competencies. Fifteen Connecticut Teaching Competencies were adopted in 1984 as standards to be used in the approval of teacher preparation programs. Adoption of these standards aligned the curriculum and expectations of teacher education programs with expectations applied to first-year teachers en route to a professional license. Ten dimensions of effective teaching behaviors—clustered in the three domains of management, instruction, and assessment—were then developed from those 15 competencies (See Figure 1).

Underlying the assessment are several critical assumptions: that effective teaching can take many forms; that critical dimensions of teacher performance can be identified across diverse teaching contexts; that the competence of beginning teachers can be differentiated from that of their experienced colleagues; that effective teaching is sensitive to cultural diversity; that teaching must be judged in a context of a teacher's intentions; and that professional judgment is vital to teacher assessment (CSDE, 1998).

During their first year of teaching, all beginning teachers were required to demonstrate proficiency in the competencies through classroom observations done by assessors trained by CSDE to use the CCI. Assessors included teachers, administrators, and teacher educators. Assessors conducted brief pre- and post-observation interviews and kept a running record of classroom events. After an observation, the assessor completed a lesson analysis, provided evidence in support of that analysis, and rated the performance as acceptable or not on each of 10 indicators. Six observations were planned across the first year with the recommendation to certify based upon the combined scores across observations. If a beginning teacher received 30 out of 30 "acceptables" in the first three observations, or 39 out of 40 on the first four, the remaining observations were waived. New teachers were given up to two years to successfully complete the CCI requirement; in 1992, the State Board reported that between 10 percent and 15 percent of first-year teachers needed a second year of support (CSBE, 1992).

The CCI assessment was packaged with several support structures. Each first year teacher was assigned a school-based mentor or mentor team, and all mentors participated in 30 hours of professional development designed to help them learn to mentor. Mentors did not evaluate their mentees; rather, they offered support, coaching, and guidance. Evaluation was left to other assessors, thus separating the potentially conflicting roles of mentor as supporter and mentor as evaluator (Feiman-Nemser, Carver, Schwille, & Yusko, 1999). Furthermore, three 3-hour clinics, designed to prepare new teachers for the CCI assessment, were offered statewide. And all first- and second-year teachers participated in a 15-hour, yearlong seminar taught by exemplary teachers and crafted to help new teachers think about their practice and prepare for their assessments.

Figure 1. Connecticut's 15 Teaching Competencies and the CCI Indicators

Connecticut Teaching Commpetencies

Every Connecticut teacher will:

- demonstrate facility in the skills of reading, writing, and mathematics
- demonstrate knowledge of the subject to be taught
- demonstrate knowledge of human growth and development as it is related to the teaching–learning process
- demonstrate knowlege of the American public school system
- plan instruction to achieve selected objective
- effectively implement instructional plans and use appropriate instructional techniques
- effectively communicate with students
- help students develop positive self-concept
- facilitate the independence of the student as learner
- effectively organize time, space, materials, and equipment for instruction
- effectively assess student needs and progress
- effectively meet the needs of exceptional students
- establish a positive learning environment
- meet professional responsibilities
- encourage and maintain the cooperative involvement and support of parents and the community

Connecticut Competency Instrument Indicators

Every Connecticut teacher will, with regard to

Management:

- promote a positive learning environment
- maintain appropriate standards of behavior
- engage the students in the activities of the lesson
- effectively manage routines and transitions

Instruction:

- present appropriate lesson content
- create a structure for learning
- develop the lesson to promote achievement of the lesson objectives
- use appropriate questioning strategies
- communicate clearly, using precise language and acceptable oral expressions

Assessment:

- monitor student understanding of the lesson and adjust instruction when necessary

The effects of the BEST program have extended well beyond the beginning teachers who received its direct services. Local educators report that some of the most salutary effects of the program have been on the mentors and state-trained assessors, whose participation has improved their own teaching as they have learned about effective practices from the seminars and assessments as well as the increasingly well-trained beginning teachers themselves (Baron, 1999). By 1997-98, almost half of Connecticut's teachers had participated in the program as beginning teachers, mentors, or assessors. Another critical element of the reforms was the requirement that all cooperating teachers who work with student teachers also needed to be trained for their work, and all university teacher preparation programs were evaluated using the same standards reflected in the CCI competencies. Many teacher leaders are engaged in several aspects of preparation and professional development, all of which revolve around common standards. The extent to which these integrated efforts have influenced beginning teachers' conceptions about good teaching is reflected in these interviews with first year teachers in one of Connecticut's urban school districts:[3]

> One of the things that helped a lot is that my cooperating teacher last year is a state assessor and she used to do live assessments. My program at the university says that your cooperating teacher must be a BEST-trained cooperating teacher. She used to assess me using a CCI for every lesson, every single day, which I think was little bit of overkill... but in my ten-week experience it gave me a good idea of what is expected of me by the state and how I will be assessed by the state. Also I learned just what are the components that make good teaching.
>
> I got a lot of reinforcement from my teacher preparation program because one of their priorities was having us become familiar with the CCI instrument and doing practice videotapes so that we can assess each other. And we talked a lot about the indicators on a more specific level in many different courses, so that we can really dissect and look at what the state wants us to be doing in our class, (including) why are these good things and why are these indicators valid.
>
> I kind of got it from all angles, which I think, in retrospect, makes the whole idea a lot more cohesive. Because it is not like you are just learning about it in class one day, and it is a done deal. I was actually practicing it on a daily basis and the more you are exposed to something, the more familiar, the more comfortable it is, so something like doing a videotape was not this foreign concept to me.... I have already gone through working out all the issues, trying to figure out what it is, why it works, why I need to do this, all of those questions I dealt with as an intern. And so, as a first year teacher I am so much more together...

Clearly the induction program and the teaching standards influenced candidates' earlier teacher preparation as well as their later teaching practice. In addition to the integration of the BEST standards, the requirement that all districts that hire beginning teachers make trained mentors available to them made an important difference to young teachers:

> I have a mentor who is also my department head. We meet regularly, and it is a chance to tell her the types of things I am doing, and I get to ask questions and she always offers to help. That has been working out well, especially since we have already established a relationship before this (when I was a student teacher).
>
> (My mentor) is wonderful and she's very accessible. I think truly she may know everything! I think she thinks I'm more capable than I am... My only complaint is I wish she had more time for me. I could probably give her two hours of questions a day.
>
> I think the support system is very important, and I think that they have done a good job at setting up the mentor program. I think I am a good teacher, but I always feel like I never do enough or never have everything done, ever . . . I know it will get better with time, but I think having people there to support you is very important.

Experienced teachers who participated in the mentor and assessment programs were also affected. Mentors and assessors reported in follow-up studies that they improved their own teaching from their work with novices around the CCI. Furthermore, principals and district personnel regularly adapted the CCI for their own purposes in teacher evaluation. Principals, lead teachers, department heads, and superintendents also often used the CCI-stimulated instruments, workshops, and seminars as professional development tools to enable their work with teachers.

Refining the System: The Second Wave

Not content to rest on its laurels, the CSDE continued to work to improve the BEST program and the other aspects of preparation. A second wave of reform has involved replacing the generic classroom observation with subject-specific portfolios, modeled on the work of the National Board for Professional Teaching Standards, and enhancing the support system. Efforts to develop the portfolio began in 1993-94, with pilots conducted in 1996 and a full system operating by 2000.[4] Rather than a one-hour observation of teaching behaviors that asks whether goals have been set, plans implemented, and procedures followed, the portfolio analyzes longer segments of teaching in relation to student learning, taking both content and context into account.

Currently directed at second-year teachers, the portfolio is based on standards for teaching within separate content fields. These teacher standards are linked to Connecticut's student standards, national standards for teaching developed by the National Board for Professional Teaching Standards and INTASC (a group of more than 30 states known as the Interstate New Teacher Assessment and Support Consortium), and research on effective teaching. This evolving conception of teaching is decidedly more nuanced than the earlier generic CCI: Teachers are evaluated on the appropriateness of their teaching decisions for the students they serve, the range of strategies they use effectively, the curriculum's logic and coherence, the quality of work they assign, their skill in assessing and responding to student learning, and their capacity to evaluate their own teaching and make adjustments based on evidence of student learning.

The portfolio is highly structured. Second-year teachers received explicit instructions about how to assemble their portfolios. Although details vary from one content area to the next, in all cases, the new teacher documents a unit of instruction concerning a significant concept. A series of subject-specific lessons are described, student learning is assessed, and teachers reflect on their teaching and students' learning. The portfolios consist of lesson logs, videotapes, teacher commentaries, and student work. Figure 2 (p. 16) illustrates the structure of the mathematics portfolio which requires analysis of two featured lessons—one a whole group lesson focusing on mathematical discourse and the other a lesson in which small groups are working with manipulatives and technology on mathematics goals specified in the student standards.

Two trained assessors—certified to teach in the candidate's area—evaluate the portfolios. Assessors begin by working independently, organizing the material using a subject-specific evaluation framework. In mathematics, for example, the framework includes mathematical tasks, mathematical discourse, learning environment, analysis of learning, and analysis of teaching. After the evidence is organized, assessors work as a pair, summarizing the evidence relevant to guiding questions: How appropriate are the mathematical tasks the teacher selects for the instructional goals and objectives? How does the teacher promote student discourse in the classroom? How effectively does the teacher manage the physical, time, and social aspects of the classroom? How does the teacher assess students' learning? How does the teacher learn from experience?

Once answers are written and evidence is cited, assessors use a scoring rubric to guide their analysis. Three passing assessment levels are possible: advanced (level 4), proficient (level 3), and basic (level 2). Non-passing scores include below basic (level 1) and unscorable (level 0), a score assigned to incomplete portfolios. Another pair of assessors independently re-scores those portfolios scored as unacceptable.

Figure 2. Mathematics Portfolio Checklist

PORTFOLIO ITEMS CHECKLIST

Make sure your portfolio includes all of these items:

Part 1: The Context of Your Teaching

- Portfolio Class Profile Form
- Commentary:
  - Community
  - Class
  - Students

Part 2: A Series of Lessons, and Two Featured Lessons

- Series of Lessons Form
- Commentary—Overview
- Set of Plans for Lessons (follow this format):
  - Before teaching the lesson:
    - Mathematics objectives
    - Tasks
    - Opportunity for discourse
    - Environment
    - Analysis of learning
  - Each day, after teaching:
    - Analysis of teaching
- For Two Featured Lessons
  - Featured Lesson Form
  - Videotape
  - Student work, including feedback
  - Commentary—(after teaching and looking at video and student work)

Part 3: A Cumulative Evaluation of Student Learning

- Copy of the Assessment
- Answer Key and/or Scoring Guide
- Student Work, including Feedback
- Commentary

Part 4: Analysis of Teaching and Professional Growth

- Commentary

1999-2000 BEST Mathematic Teaching Portfolio Handbook, Rev. 9/28/99. p. 40.

Portfolio scores are summarized and sent to all candidates and the superintendent of their home districts in September. Candidates who score at levels two through four are eligible for the provisional educator certificate as long as all other criteria are met. Candidates who receive a level one score (below basic) or a zero (unacceptable) are eligible for a third year in the BEST program. Candidates who receive an unacceptable score are eligible for a third year only if the superintendent requests it and when the Commissioner of Education can find "good cause" (Sergi, 1999).

After pilot testing the portfolio assessment, the CSDE staff—using data collected through interviews with candidates and mentors, surveys of teachers and administrators, and other forms of feedback—streamlined the process and reduced the time and effort required to prepare the portfolio, while still guaranteeing sufficient evidence for valid decision making. For the academic year 1999-2000, bound handbooks were distributed to all first-year teachers with clear instructions regarding how to complete the portfolio requirement (see, for example, CSDE, 1999c, d, e, f, g). (See Figure 2.) Receiving a provisional certificate is now contingent on successful portfolio completion.

This assessment system is embedded in an elaborate support system, which spans up to the first three years of a new teacher's career:

Figure 3. Assessments and Supports for Beginning Teachers in Connecticut

Year One	Year Two	Year Three
School-based support: • Support by mentor or support team. **State-based support:** • Discipline-specific seminars (three 3-hour regional sessions) • CCI clinics • Science safety assessment activity for science teachers only	**School-based support:** • Support by mentor or support team. (optional) **State-based support:** • Discipline-specific seminars (three 3-hour regional sessions) • Portfolios assessment: Submission of a teaching portfolio by May 1.	**State-based support:** • Feedback and coaching sessions for beginning teachers not meeting the portfolio standard in Year 2. • Portfolio assessment: Resubmission of a teaching portfolio.

(Sergi, 1999)

Using feedback from surveys and focus groups, CSDE staff members have improved the BEST support system. Modest libraries of model portfolios are now available for review at regional support centers, and an electronic prototype of a portfolio may also be developed. Experienced teachers offer regional workshops focusing on the technical aspects of portfolio assembly, including instructions for videotaping. The state department is now collaborating with universities to offer courses that incorporate the content of the BEST portfolio seminars. Rather than controlling all aspects of the BEST program, the state department continues to rely on teachers and teacher educators, fueling the reform with the expertise of teachers and university faculty statewide.

Because the CCI competencies are included in the portfolios, the CSDE has eliminated the CCI requirement in subject areas in which portfolios currently exist. The small number of teachers who enter teaching through an alternate route or who are not fully credentialed for their field (for example, current teachers who are moving to bilingual or special education positions) are also required to complete the CCI assessment for formative purposes (Sergi, 1999).[5]

Beginning teachers see the portfolio requirement as more demanding than the earlier CCI observations, but there is a strain of professional pride in their responses to questions about their experience in preparing for this assessment. In a mid-sized urban district, these sentiments emerged over and over again in interviews:

> I think it is a good idea. I think it is a huge hurdle, but I definitely think the requirements for teachers need to be tighter. The expectations need to be raised because I think there are, with no doubt, teachers in this building who could not do a portfolio, even if they were given the entire year. I have no problem stepping up to the plate and doing it.
>
> All the video and the state regulations add a lot of pressure, I think. I understand why. I think too many times you see that once people get the job, then they think "this is it," and you know it is the students who are suffering... Actually, it is hard to reflect on your teaching. You don't necessarily see yourself in the same light as others do, looking on.
>
> It is a good program. I think it is important that they have it, and I understand why they do. I don't regret the fact that I have to do it.
>
> I understand the premise behind (the portfolio).... I really do. Most states don't do it, and I have to applaud Connecticut for really caring about their teachers, caring about their students' education. But like I said, it is very difficult.

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HIGH STANDARDS AND HIGH SUPPORTS FOR STUDENT LEARNING

Aligning Student Assessment

While the work on strengthening teaching was beginning, Connecticut was also focusing on student learning standards. In 1987, Connecticut enacted its Common Core of Learning (CCL), which articulated the foundational skills students should be expected to master. These were partly reflected in the Connecticut Mastery Tests (CMT), a set of statewide, standardized student achievement tests of reading, language arts, and writing in grades four, six, and eight. As the state department refined and revised the teacher assessment policies, and as a sense of quality teaching became more widespread, the state sought to assess both basic skills (in mathematics, reading, writing, and listening) and the application of those skills to "realistic problems" using more authentic measures.

Thus, a second generation of the CMT was introduced in 1993. Augmented items were added to the assessment, including short answer and longer essay responses to extended samples of literature and other texts. The tenth grade Connecticut Academic Performance Test (CAPT), which assesses mathematics, science, language arts, and interdisciplinary studies, was also introduced in 1993-94. The Connecticut tests resemble the National Assessments of Educational Progress in many respects, emphasizing higher order thinking and performance skills to a greater extent than many state testing programs. They include a substantial proportion of open-ended responses requiring extended writing and production of evidence about problem solving. Local and regional boards of education are required by law to submit "strategic school profiles" that are tied to raising student achievement on both the CMT and CAPT.

Creating Accountability Around Information and Supports

While Connecticut has been a leader in adopting reforms designed to raise teaching standards, the state has not imposed a mechanical set of rewards and punishments with its assessments of students. It has chosen to adhere carefully to the professional standards for testing issued by the American Educational Research Association, American Psychological Association, and the National Council for Measurement in Education, which caution that test results are not sufficiently robust or reliable to be used for decisions about student promotion or graduation or for rewards or sanctions to teachers or schools (AERA, 1999). Connecticut has eschewed high-stakes sanctions in favor of widely disseminated measures of student learning that create pressure for improvement with attendant supports for professional and system learning.

A study by the National Education Goals Panel concluded that, along with its teacher reforms, Connecticut's low-stakes testing system, which uses authentic measures of reading and writing, contributed to achievement gains. A key to the usefulness of the tests is "the wide dissemination of the . . . test objectives and the increasingly user-friendly reporting mechanisms" (Baron, 1999). The state department not only reports student assessment results within bands of districts with similar student populations, it also gives the districts raw data in computerized form, allowing districts to do more targeted analyses. In addition, the state provides supplemental assessments to districts that request them for assessing students against the state standards in grades three, five, and seven (grade levels in which the state tests are not required or reported). And the state provides additional resources to the neediest districts, including funds for professional development for teachers and administrators, preschool and all-day kindergarten for students, and smaller pupil-teacher ratios.

The Goals Panel's report noted that the visibility of school-level results through the state's reporting system has galvanized district efforts to make major revision in reading instruction. At the same time, the provision of resources to the state's neediest districts through categorical grants has enabled these districts to enhance their reading initiatives and to begin to close the gap between their scores and those statewide. The approach uses data to identify problems that are then addressed with capacity-building strategies. Thus, student achievement is important—indeed, it drives the system. But when students fail, adults are asked to analyze the reasons for this failure and those adults are then given the resources necessary for continued professional development and the implementation of other practices that will help raise student achievement.

A number of state-level policies were identified as contributing to the success of the 10 Connecticut districts making the greatest progress in reading between 1990 and 1998 (Baron, 1999). Among them were the realignment of district curriculum and instruction to the student learning standards and assessments, the rich information about student performance made available by the CSDE, the teacher policies that have enabled districts to hire and retain highly qualified teachers who have been prepared to teach a wide range of learners, and the BEST strategies that have increased the knowledge and skills of veteran teachers along with beginners involved with the program.

District respondents also mentioned state support for local professional development and evaluation programs in these districts. Extensive support for professional development for the teaching of reading was a key factor. Consistent with the Common Core of Learning and the state assessments, professional development funds were orchestrated to improve teachers' knowledge of how to teach reading through a balanced approach to whole language and skill-based instruction, how to address reading difficulties through specific intervention strategies, and how to diagnose and treat specific learning disabilities, which was addressed as part of the state's efforts to prepare all teachers to meet special education needs. Most of the districts had developed cadres of teacher trainers or coaches who were experts in literacy development and who were available to work with colleagues in the schools, offering demonstration teaching as well as classroom coaching. Several districts held extensive (e.g. 20 day) literacy workshops in the summer.

The approaches to reading instruction used in sharply improving districts relied on the enhanced teacher knowledge spurred in Connecticut's teacher education reforms and represented in the state's teaching assessments: systematic teaching of reading and spelling skills (including linguistics training that included and extended well beyond basic phonemic awareness); use of authentic reading materials—children's literature, magazines, newspapers, and trade books—along with daily writing and discussion of ideas; ongoing assessment of students' reading proficiency through strategies like running records, miscue analyses, and analysis of reading, writing, and speaking samples; and intervention strategies for students with reading delays, such as Reading Recovery, which was used in nine of the 10 sharply improving districts and is widely used across the state (Baron, 1999).

District administrators noted the importance of the system's coherence in allowing them to pursue these sophisticated strategies for teaching and learning. The coherence was evident in the fact that the state assessments measured reading and writing in reasonably authentic ways, that the preparation and professional development programs were supportive of the same approaches, and the fact that beginning teachers were coming to them better prepared with each passing year, while veterans also had many opportunities to develop. State department officials referenced feedback from local districts as a motivating factor in their continual adjustments to both the student standards and assessments and the teacher development policies.

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THE FUTURE OF STANDARDS-BASED REFORM IN CONNECTICUT: LOOKING AHEAD

An urgency was added to Connecticut's educational reforms when the Connecticut Supreme Court issued its decision in *Sheff v. O'Neill* in July 1996. This decision resulted in more attention being focused on the status of the state's high-minority districts and the allocation of resources to support learning for all students. Along with further equalization of spending and diagnostic attention to the achievement gap between white and minority students, a by-product of the decision has been further integration of the state's standards for teaching and learning.

Governor John G. Rowland convened an Educational Improvement Panel in August 1996, and in January 1997 the Committee issued Connecticut's Comprehensive Plan for Education—*Nurturing the Genius of Connecticut's Students*—that established five goals with associated expectations and "action steps":

- To set and meet high expectations for academic achievement for all students in order to prepare them for productive adult life, continuing education, and responsible citizenship
- To create the optimal environment for learning by meeting the fundamental needs of all learners
- To set and meet high standards for the performance of teachers and administrators leading to and evidenced by improved student learning
- To focus resources effectively, efficiently, and equitably in order to ensure that all students achieve at high levels
- To increase the direct involvement of all citizens in public education[6]

This comprehensive reform package identified teacher certification and ongoing development as an important piece of the reform puzzle. Strengthening still further its standards-based approach, the CSDE was charged with developing a "Common Core of Teaching" as the basis for professional standards for Connecticut teachers and administrators and then incorporating those standards into program approval standards for teacher preparation programs, initial licensure standards for beginning teachers and administrators, and expectations for continued professional development for veteran teachers and administrators. In addition, the CSDE was charged with developing a competency-based assessment for the initial certification of administrators that will focus on the principal's role as instructional leader and facilitator of professional development; implementing the BEST portfolio-based assessment for teachers already under development; implementing increased standards for renewing the professional educator certificate by linking continuing education units to the goal of increasing student achievement; and providing incentives to increase collaboration between teacher preparation institutions and school districts

Many of these initiatives were already under development within the proactive CSDE. The new mandates gave the CSDE staff an opportunity to expand the reforms. The commitment to teaching quality was underscored by the statement of principles guiding the development of increasingly comprehensive views of teacher evaluation, support, and professional development:

- student learning is directly affected by teacher competence;
- teacher competence is positively affected by the integration of teacher evaluation and professional development;
- teachers, like students, must be continual learners;

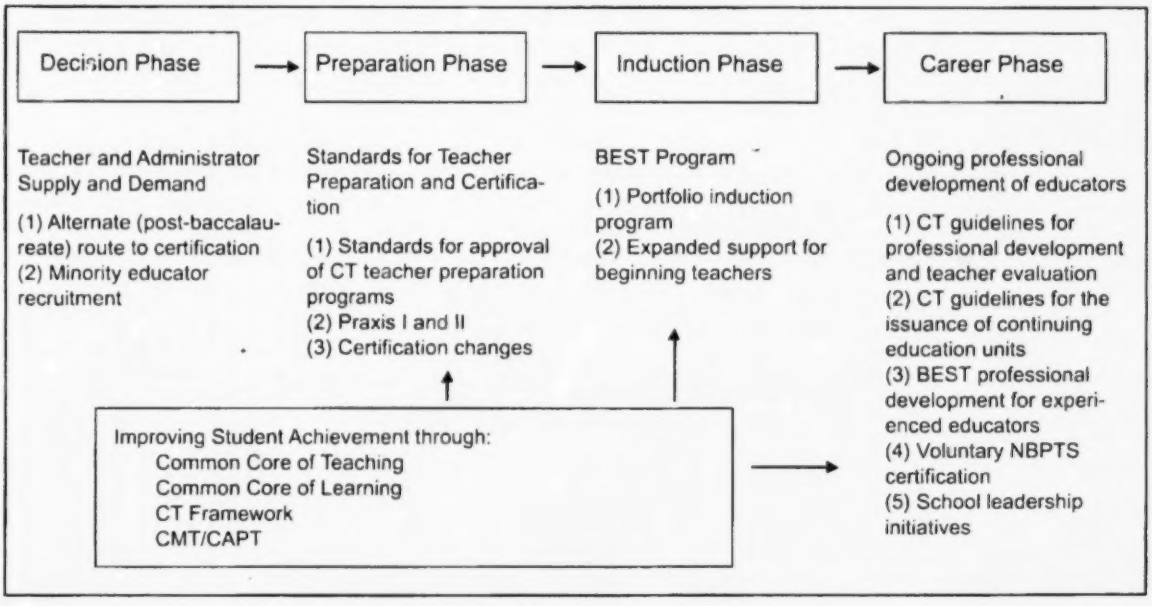
- an effective evaluation plan requires a clear definition of teaching and learning and a system to assess it; and
- the gaps between expectations for student performance and actual student performance should guide the content of professional development (CSDE, 1999a, p. 4).

Under the guidance of current commissioner, Theodore Sergi, and with these principles in mind, CSDE staff members have pursued several interdependent lines of work designed to further align student and teacher expectations and policies. These are described in a report issued in 1999, *Connecticut's Commitment to Excellence in Teaching: The Second Generation* (CSBE, 1999a). The report placed the BEST program within the larger context of teachers' continual improvement, including guidelines for teacher evaluation and professional development; guidelines for the issuance of continuing education units (CEUs); and new guidelines for administrative licensing. The authors display the second-generation initiatives in Figure 4 below.

Figure 4 illustrates how the state began expanding upon earlier reforms. In recent years, Connecticut has attempted to further expand its pools of recruits by urging universities to create graduate-level alternate route teacher education programs (fifth-year options for mid-career entrants) to complement the traditional undergraduate programs and the emerging five-year models at several universities, while also emphasizing greater minority educator recruitment. The state influenced teacher education programs by enacting new standards for program approval and certification that link student and teacher learning expectations. At the same time, it expanded both the support and assessment components of the BEST program and began to improve professional development by incorporating standards-based approaches to evaluation, continuing education, and voluntary National Board certification.

Moreover, the new plans establish ambitious initiatives to redefine administrator preparation and certification. As in its work with INTASC around beginning teacher-licensing standards, Connecticut has led and then adopted the work of an interstate

Figure 4. Connecticut's Teaching Policy System in 1999


Decision Phase
Preparation Phase
Induction Phase
Career Phase
Teacher and Administrator Supply and Demand
(1) Alternate (post-baccalaureate) route to certification
(2) Minority educator recruitment
Standards for Teacher Preparation and Certification
(1) Standards for approval of CT teacher preparation programs
(2) Praxis I and II
(3) Certification changes
BEST Program
(1) Portfolio induction program
(2) Expanded support for beginning teachers
Ongoing professional development of educators
(1) CT guidelines for professional development and teacher evaluation
(2) CT guidelines for the issuance of continuing education units
(3) BEST professional development for experienced educators
(4) Voluntary NBPTS certification
(5) School leadership initiatives
Improving Student Achievement through:
Common Core of Teaching
Common Core of Learning
CT Framework
CMT/CAPT

consortium—Interstate School Leadership Licensure Consortium—to create new standards and assessments for school principals. These new leadership standards emphasize the centrality of expertise about teaching for the development of true instructional leaders. They include knowledge about teaching and learning, curriculum and assessment, professional development, and management of organizations. This represents a major shift from the view of school principal as administrator embodied in most certification programs over the last half century. These programs have focused on knowledge of school law and management theory but not on the leadership of schools as learning organizations rooted in sophisticated understanding of effective pedagogy for the development of both students and adults.

The Connecticut story is a tale unfolding, with myriad policies and practices tested, edited, and added. Rather than ignoring earlier reforms, this comprehensive reform package was designed to build upon the foundations laid by the earlier wave of reform. Key components are more direct links between the standards for students and those for teachers; more ambitious goals for preparation and licensing of teachers; and more focused and accountable professional development for veteran teachers.

Linking Standards for Students and Teachers

First, the state's *Common Core of Learning*—a vision of student expectations—was revised in 1998 and became the touchstone for all other policies. It is an ambitious vision of student learning that includes (1) foundational skills and competencies—including reading, writing, speaking, listening, viewing, quantifying, problem solving, reasoning, and working collaboratively and independently; (2) understandings and applications: discipline-based and interdisciplinary skills—such as language arts, mathematics, science, social studies, world languages, the arts, etc.; and (3) aspects of character—including responsibility and integrity, effort and persistence, intellectual curiosity, respect, citizenship, and a sense of community. The CCL's authors explain that it is not a curriculum but rather an "integrated and interdependent set of expectations" offered not as a mandate but as a tool to:

> . . . generate discussion and stimulate change in school programs, student objectives, resource allocations, and teaching. It is offered as a catalyst for curricular change and school improvement by providing a statement of high expectations needed in order that all Connecticut students become fully educated (CSBE, 1998, p. 2).

Elaborating on the CCL is the *Connecticut Framework: K-12 Curricular Goals and Standards*, a hefty document that lists program goals along with content and performance standards for 10 subject areas, ranging from mathematics and social studies to technology and world languages. Content advisory committees comprising teachers, parents, community members and students who used state and national documents as resources developed the document. Drafts were reviewed by state educator organizations and public representatives and revised by CSDE staff for consistency and clarity.

In 1999, Connecticut adopted a new *Common Core of Teaching*, a document that describes the professional knowledge and skill required of teachers who are prepared to help students meet the standards of the *Common Core of Learning*. The CCT incorporates critical elements of the INTASC and National Board standards and is intended to be a comprehensive account of the accomplished teacher. The *Common Core of Teaching* includes foundational skills and competencies shared by all K-12 teachers and moves from generic competencies to subject-specific professional

standards that delineate the knowledge, skills, and competencies of elementary school teachers, and teachers of English/language arts, social studies, mathematics, music, physical education, science, special education, visual arts, and world languages.

The CCT represents an important advance over the old Connecticut Teaching Competencies, that it replaced, as it recognizes the disciplinary base of pedagogical practices and includes much greater emphasis on the assessment and diagnosis of student needs and learning as a basis for teaching decisions rather than the implementation of teaching routines. The new standards evaluate teaching in relation to student learning rather than on the basis of teaching behaviors alone, and they do

Figure 5. Connecticut's Common Core of Teaching (CCT)

Foundational Skills and Competencies

I. Teachers have knowlege of:

Students

1. Teachers understand how students learn and develop.
2. Teachers understand how students differ in their approaches to learning.

Content

3. Teachers are proficient in reading, writing, and mathematics.
4. Teachers understand the central concepts and skills, tools of inquiry, and structures of the disciplines they teach.

Pedagogy

5. Teachers know how to design and deliver instruction.
6. Teachers recognize the need to vary their instructional methods.

II. Teachers apply this knowledge by:

Planning

1. Teachers plan instruction based upon knowledge of subject matter, students, the curriculum, and the community.
2. Teachers select and/or create learning tasks that make subject matter meaningful to students.

Instructing

3. Teachers establish and maintain appropriate standards of behavior and create a positive learning environment that shows commitment to students and their successes.
4. Teachers create instructional opportunities that support students' academic, social, and personal development.
5. Teachers use effective verbal, nonverbal, and media communications techniques that foster individual and collaborative inquiry.
6. Teachers employ a variety of instructional strategies that enable students to think critically, solve problems, and demonstrate skills.

Assessing and Adjusting

7. Teachers use various assessment techniques to evaluate student learning and modify instruction as appropriate.

III. Teachers demonstrate professional responsibility through:

Professional and ethical practice

1. Teachers conduct themselves as professionals in accordance with the Code of Professional Responsibility for Teachers (Section 10-145d-400a of the Connecticut Certification Regulations).
2. Teachers share responsibility for student achievement and well being.

Reflection and continuous learning

3. Teachers continually engage in self-evaluation of the effects of their choices and actions on students and the school community.
4. Teachers seek out opportunities to grow professionally.

Leadership and collaboration

5. Teachers serve as leaders in the school community.
6. Teachers demonstrate a commitment to their students and a passion for improving their profession.

so within specific content fields, drawing on research that points to teaching strategies that are effective for particular purposes (e.g., the teaching of writing, development of mathematical thinking, and the like).

The CCT was developed under the leadership of Ray Pecheone, then chief of the Bureau of Curriculum and Teacher Standards, and involved multiple development committees comprising teacher educators, teachers, administrators, curriculum specialists, teachers-in-residence in the CSDE, and CSDE staff members. Pecheone also played critical roles in the development of the INTASC standards and pilot assessments. In his role as lead consultant to INTASC's assessment efforts, he used Connecticut's advances to inform the work of other states and INTASC's advances to inform the work of Connecticut. He was also involved, with several CSDE staff members and a collaborating team at the University of Pittsburgh, in developing the first portfolios in English Language Arts for the NBPTS. This cross-fertilization was critical to CSDE progress.

Also in 1999, the state board began aligning teacher evaluation and professional development with the state's teaching and learning standards, curriculum framework, and BEST. The guidelines for the issuance of CEUs were rewritten so that all professional development would focus on improving teacher knowledge and skill so as to improve student learning and be directly tied to the state policy instruments.

Strengthening Teacher Preparation and Licensing

Meanwhile, in August 1998, the Connecticut Secretary of Education approved changes in licensing requirements designed to strengthen clinical field experiences for beginning teachers, extend the education of bilingual educators, and focus on competencies rather than course credits as a means of organizing teacher education experiences. Beginning in July 2003, field experiences will be required in all areas for which a teacher applies for endorsements. Thus, student teaching in one subject domain or school level will no longer substitute for field experience in any or all areas for which a teacher wants endorsements. In addition, specialists in special education and bilingual education will need to be trained and licensed at specific grade levels (e.g. elementary/special education; elementary/bilingual; secondary/special education, etc.) Responding to the need to better educate the growing language minority population in the state, other certification requirements for bilingual educators were also strengthened, including demonstrated proficiency in English and the language of the bilingual program; completion of a planned bilingual program; and coursework in bilingual education. To respond to other perceived needs, cross-endorsements in computer education and gifted and talented education were proposed. Finally, semester hours and course requirements in teacher education will be replaced with the demonstration of competencies through a wider range of means (coursework, portfolios, field experiences, etc.).

In addition, the State Board of Education adopted revisions to the program approval standards for teacher preparation. Effective July 2003, the state will adopt National Council for the Accreditation of Teacher Education's (NCATE) standards, which are aligned with the INTASC standards, Connecticut's Common Core of Teaching, and the NBPTS's standards. The incorporation of NCATE standards is intended to bring Connecticut's institutions in line with national standards for preparation as well as with the other elements of Connecticut's system. Furthermore, all preparation programs will be required to demonstrate that their students understand the state's student standards and teaching standards.

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Together, these efforts are intended to strengthen the state's move toward a conception of teaching grounded in strong disciplinary and pedagogical content knowledge (Shulman, 1987b), as well as in a broad research base about teaching and learning. Recently, Connecticut received $4.5 million in Title II funding under the Teacher Quality Enhancement Grants Program. The grants will be used to support the further articulation of higher education efforts with the state licensing and certification system, as well as the recruitment of more minority teachers through loan forgiveness and grants for teachers in shortage areas, pathways into teaching for paraprofessionals, and "teaching" experiences such as peer tutoring and service learning in the high school and early college years.

Focusing Professional Development on Student Learning

In 1986, at the very beginning of the reform efforts, the highest level (3rd tier) certificate established by the Education Enhancement Act (EEA) was the Professional Educator Certificate. Maintaining a Professional Educator Certificate required, by law, completing 90 hours of training every five years. Every year, school districts are required to offer 18 hours of "high quality" professional development. The initial legislation adopted the Continuing Education Unit (CEU), a nationally recognized unit of measure for documenting not-for-college-credit professional development.

In the first wave of the reform, districts received little guidance concerning the professional development or the expectations for CEUs. Understandably, the initial reform's plate was full with the teacher education and licensing reforms. With limited time and resources, CSDE staff members chose to focus on a part of the system most open to change: new teachers who were not yet entrenched in traditional norms or practices. As the BEST program began to take root and was aligned with other policies in the educational system (for instance, student standards), it became increasingly clear to the CSDE staff that continued school improvement depended on a coherent system of continued educator improvement. So, in 1999, the state board began aligning teacher evaluation and professional development (including the guidelines for CEUs) with the student and teaching standards. The guidelines for the issuance of Continuing Education Units were rewritten, and the primary focus was that all professional development experiences "enrich or improve the skills, knowledge, and abilities of educators to improve student learning."

Impact of Connecticut Reforms on Students and Teachers

While it is too early to know the full impact of this increasingly well-articulated and aligned system of teaching and learning policies, it is clear that Connecticut's investments in teaching quality are paying off in a variety of ways.

Influences on Teachers and Teaching

Within three years of passage of the Education Enhancement Act, Connecticut's longstanding shortages of teachers in its urban areas had been transformed to surpluses statewide (CSDE, 1990), and the state has continued to maintain those surpluses ever since. Even as demand has increased in recent years, insiders report that the competition for teaching positions in Connecticut is high and that the pool of qualified applicants is impressive. Baron (1999) found that educators in districts with sharply improved achievement cited the high and steadily increasing quality of teachers and

administrators as a critical reason for their gains and noted that "when there is a teaching opening in a Connecticut elementary school, there are often several hundred applicants" (p. 28). Fisk (1999) quotes Wise, "I have little doubt that Connecticut has the best qualified teachers in the country" (p. 119). In 1990, nearly one-third of the new teachers hired had graduated from colleges rated "very selective" or better in Barron's Index of College Majors (1988) and that 75 percent of them had undergraduate grade point averages of B or better (CSBE, 1992, p. 3). The quality of teacher education has improved as standards for programs have increased.

By law, Connecticut will not allow its districts to hire unlicensed teachers, and it requires virtually a complete program of training for those who gain even a one-year temporary license. Once teachers acquire the positions, however, the challenges are not over. As of 1999 Connecticut was the only state to implement a statewide-required teaching portfolio assessment modeled after the demanding NBPTS assessments as part of initial licensure.

The long-term effects of Connecticut's efforts can also be seen in other measures. For example, in 1993-94, 82.4 percent of the state's teachers held master's degrees (a condition of professional licensure instituted in the 1980s reforms) as compared to 47.3 percent nationally (NCES, 1997a). However, this would not translate into shared knowledge and practice without other policies that shaped the content and nature of teachers' experiences in teacher education and professional development.

Standing at the nexus of career entry and career development, the BEST program wielded extraordinary influence on practice through its design, which included both widely applied standards and extensive training of beginning and veteran teachers. Between 1986-87 and 1996-97, over 11,000 new teachers entered the system through BEST. Similarly, between 1986-87 and 1996-97, over 12,000 teachers and principals were trained as mentors, assessors, or portfolio scorers. By 2004, it is expected that fully 80 percent of all the state's teachers will have experienced the new BEST system as beginners or veteran assessors, mentors, or scorers.

Fisk (1997) reported that many school-based educators felt the BEST system "raised the level of discourse about what constitutes good teaching" in the state. In addition, an impact survey conducted in May 1996 by the CSDE showed that assessors and mentors felt that their training significantly influenced their own teaching, their interactions with colleagues, their professional knowledge, and student achievement (Fisk, 1997). As an example of the ongoing CSDE efforts to understand the effect of its actions on teachers' learning and practice, the BEST Impact Survey was mailed to 3,755 mentors, 2,321 cooperating teachers, over 1,000 assessors, and over 250 BEST program district facilitators who are responsible for implementing the program at the local level. In May 1997, another survey was sent to over 650 beginning teachers who had participated in the portfolio assessment process in 1996-97. Finally, focus groups were convened at the six statewide Regional Educational Service Centers. At each center, three principals, three mentors, and three former beginning teachers participated in discussions of the program.

Assessors. Over 80 percent of the respondents who had participated in BEST as assessors reported that the assessor training had promoted greater self-reflection in their own work (ratings of 4 or 5 on a 5-point scale). Nearly 80 percent also reported that assessor training had significantly improved their own teaching. Between 87 percent and 96 percent of all assessors reported a moderate to significant impact on their collegial relations (a 3 or higher on a 5-point rating scale), providing them with new professional knowledge and a common language and contributing to higher student achievement (Fisk, 1999; Sergi, 1998).

Mentors. Over 75 percent of the mentors reported that BEST support training had promoted greater self-reflection and 65 percent reported that support training had significantly improved their own teaching (ratings of 4 or 5 on a 5-point scale). Overall, 95 percent of mentors reported moderate or significant positive impact on collegial relationships, the improvement of their professional knowledge and skill, the development of a common professional language, and contributions to higher student achievement (Fisk, 1999; Sergi, 1998).

District Facilitators. Of the 254 district facilitators surveyed, 175 responded. Their responses indicated that there was noticeable impact on district practices through the BEST program: In 56 districts, teaching portfolios were used in professional development; in 37 districts, all non-tenured teachers are required to assemble portfolios; in 45 districts, tenured teachers assemble portfolios as well; and in 24 districts, candidates for job positions are asked to submit portfolios as part of the application process (Sergi, 1998).

Beginning Teachers. Approximately 60 percent of the teachers who attended CCI clinics reported that the clinics promoted more self-reflection and the development of a common professional language. About 46 percent reported that the clinics helped them improve their teaching and provided them with new professional knowledge. Only 30 percent reported that the information covered in the clinics was new to them, suggesting that much of the content of the CCI and the standards upon which it was based had found its way into teacher preparation programs and/or professional discourse.

Beginning teachers also reported on the impact of the portfolio: 72 percent of beginning teacher respondents indicated that the portfolio process had significantly improved their self-reflection and nearly 60 percent said that the portfolio helped them focus on the important aspects of teaching. Half of the teachers reported that the portfolio had improved their teaching practice.

For most of the participants—mentors, assessors, and beginning teachers—the portfolio assessment and support system had led to substantial professional development. Educators developed a common language, reinforced or improved their professional knowledge and skill, and deepened their capacities to reflect on their practice.

The combination of these efforts appears to be very powerful for the new educators coming into Connecticut's schools. As beginning teachers who experienced the new BEST program in 1999 explained:

> I have not reached a point this year where I just said, I have no idea what to do—nothing is working. I have a really solid pool of information and skills and ideas to work from . . . In no way am I trying to insinuate that "Oh, I have been so successful; everything has worked perfectly," because you have good days and you have bad days. But I think it is knowing and understanding why it was a bad day and a good day, and in my program they had us reflecting on those things a lot. I think it gets you into a good habit . . . If you can take a few minutes and evaluate what is going on, that it is a skill (the state and the district) are going to ask me to utilize in the portfolio . . . .
>
> So far my BEST program has been very rewarding in terms of what I have accomplished in a year . . . I have a staff developer who I meet with once a week for half an hour every week and I can ask her anything from 'how would you teach this?' to 'do you have any materials on that?' And then I also have my mentor. My mentor tries to meet with me at least weekly and that is another person I can have as a confidant. If things are bothering me, I can talk to her.

> I am in a different situation, so I don't consider myself like the typical new teacher . . . To be trained in Connecticut and to have an assessor as a cooperating teacher and to have a department head who is my mentor . . . . I have all these factors that really make my experience click in a big, big way, and that not many people have. Like I fell into this little spot, but I fell into a really good spot.

Similarly, the CSDE staff report their own continued learning: Just as they require teachers to examine data in making decisions, so too does the CSDE collect and analyze data to consistently inform the design, and subsequent redesign, of its policies. Inquiry is critical to the CSDE's work.

Influences on Student Learning

The harvest of this work is also seen in Connecticut's sharply increasing student achievement, despite demographic trends that would appear to press in the opposite direction. Connecticut's median household income dropped during the 1990s and its poverty index grew by nearly 50 percent (NCES, 1997, Table 20). The proportions of students who are members of traditionally underserved minority groups grew during the decade: Between 1992 and 1998, the percentage of Black students grew from 12.9 to 13.7 percent, and the percentage of Hispanic students increased from 10.7 to 12.1 percent (Baron, 1999, p. 17). In addition, Connecticut has experienced steady growth in the share of students who are new English language learners, with growth in immigration from many parts of the world. While there are achievement gaps among White and minority students and among those from more and less wealthy families, these gaps grew smaller during the 1990s as achievement rose for students from every group, across all types of districts (Baron, 1999).

As we noted earlier, Connecticut fourth graders far outscored all other students in the U.S. on the 1998 NAEP reading test, and trend data show that fourth graders' scores grew significantly over time, leaving Connecticut in a class of its own. (See Figure 6.) The proportion of students scoring at or above the proficient level in reading moved from 34 percent to 46 percent (as compared to the 1998 national average of 29 percent). Eighth graders also met or surpassed student performance in all other states.

In the NAEP Trial State Assessment in 1996, Connecticut was among the five states with the highest mathematics scale scores for fourth graders, and among the eight states with the highest average scores for eighth graders. The proportion of fourth graders who scored at or above a proficient level in mathematics rose from 24 percent in 1992 to 31 percent in 1996. (The national rise went from 17 percent to 19 percent). The proportion of eighth graders who performed at or above proficient rose from 22 percent in 1990 to 31 percent in 1996. (The national trend went from 15 percent to 23 percent).

Growth on the Connecticut Academic Performance tests, which are extremely challenging, has also been steady and increasing in every area. (See Figure 7.) Student achievement scores on the Connecticut Mastery Tests in mathematics and reading also showed steady upward trends. (See Figures 8 and 9.)

Similar proficiency levels are reflected in the writing scores. In a state level normative evaluation provided by Harcourt Brace Educational Measurement, the average Connecticut student scores well above national norms. For example, it is estimated that fourth-grade students who achieved the state average score on the CMT mathematics test would have scored better than 64 percent of students nationally.

Figure 6. Fourth Grade Student Achievement in Reading on the National Assessment of Education Progress, 1992-1998

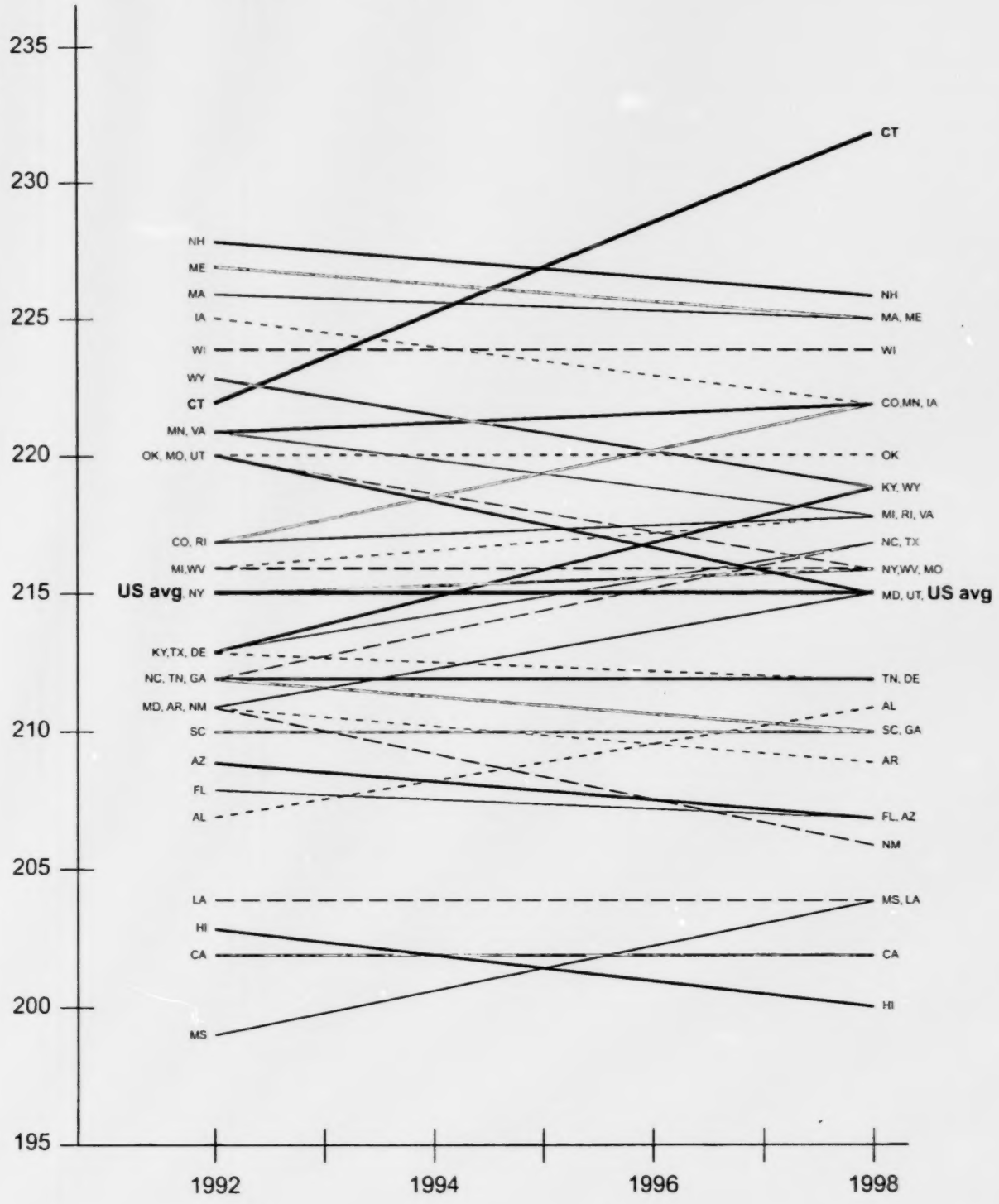

Figure 7. CAPT Scores in 1995-1999

Connecticut Academic Performance Tests											
Subject	Scale	State Goal	Avg. score 1995	Avg. score 1998	Avg. score 1999	Percent ≥ goal 1995	Percent ≥ goal 1998	Percent ≥ goal 1999	CAPT index 1995	CAPT index 1998	CAPT index 1999
Mathematics	100-400	266	248.7	256.9	257.7	37.9%	43.7%	43.1%	65.7	71.9	72.0
Science	100-400	270	249.6	250.6	251.4	32.3%	35.5%	38.0%	67.6	67.2	68.3
Language Arts, editing	100-400	217	250	249.5	251.2	30.6%	35.2%	39.2%	64.7	64.6	68.8
Response to literature	20-120	83	73.8	75.4	75.5						
Inter-disciplinary	20-120	80	70.9	75.6	76.5	38.1%	38.4%	42.3%	68.5	69.9	71.3

Figure 8. CMT Mathematics Scores, 1993-1998

Connecticut Mastery Test (CMT), 1993-1998 Mathematics						
	Avg. number of objectives mastered Grade 4	Percent at or above math goal Grade 4	Avg. number of objectives mastered Grade 6	Percent at or above math goal Grade 6	Avg. number of objectives mastered Grade 8	Percent at or above math goal Grade 8
1993	23.6	53.3%	25.2	44.9%	26.0	46.2%
1994	24.2	56.8%	25.3	45.9%	26.6	47.7%
1995	24.5	59.3%	25.6	47.7%	26.5	47.3%
1996	24.5	59.1%	26.2	51.8%	27.3	51.0%
1997	24.8	60.8%	26.6	54.0%	27.7	52.7%
1998	24.9	61.4%	26.5	52.9%	28.6	56.7%
Growth since 1993	+1.3	+8.1%	+1.3	+8.0%	+2.6	+10.5%

Figure 9. CMT Reading Scores, 1993-1998

Connecticut Mastery Test (CMT), 1993-1998 Reading						
	Avg. number of objectives mastered, Grade 4	Percent at or above reading goal, Grade 4	Avg. number of objectives mastered, Grade 6	Percent at or above reading goal, Grade 6	Avg. number of objectives mastered, Grade 8	Percent at or above reading goal, Grade 8
1993	46	44.6%	59	57.5%	64	58.9%
1994	47	45.0%	59	58.7%	64	59.2%
1995	47	47.7%	59	59.4%	64	58.9%
1996	49	54.8%	59	60.0%	65	63.9%
1997	49	55.2%	59	60.3%	65	64.2%
1998	49	54.4%	60	65.8%	66	66.4%
Growth since 1993	+3	+9.8%	+1	+8.3%	+2	+7.5%

Alternative Explanations for Student Achievement Gains

There are many potential reasons for these steady, impressive gains. Three policy-relevant variables noted in other analyses (Baron, 1999; Fisk, 1999) stand out as especially important in the Connecticut case. First, the state's comprehensive teacher policies have provided a base of professional expertise for all of its other reforms. Second, Connecticut's particular brand of low-stakes, standards-based reform has tied increasingly authentic, information-rich assessments to analytic supports for districts and schools seeking to understand their achievement patterns as well as to curriculum improvements targeted to these needs and to professional development in support of curriculum change. Third, Connecticut has provided consistent funding supports for statewide education reforms, including funding for extensive professional development in reading and other targeted areas, categorical grants to the state's neediest districts (defined by both income and educational achievement), and growing supports for teacher preparation and program development in the areas of bilingual education and the teaching of students with special learning needs.

Interestingly, when Baron (1999) examined whether reforms popular in other states might have played a role in Connecticut's success, she discovered that neither class size nor instructional time were important factors. Connecticut's class size dropped by less than one student per class in the early elementary grades and grew by more than that amount in the upper grades between 1991 and 1998, leaving the state ranked 14th nationally on this indicator. Total instructional time grew by an average of only four hours per year in elementary school and an average of only 23 hours in middle schools, leaving Connecticut ranking 34th nationally, well below the national median. All of this suggests that teaching might well account much more for the State's extraordinary levels of learning than other potential factors.

Figure 10. CMT State Level Normative Evaluation

	State Level Normative Information* Mean National Percentile Ranking		
	Mathematics	Reading Comprehension	Written Communicaton
Grade 4	64	59	62
Grade 6	64	62	68
Grade 8	66	61	66

* *Connecticut Mastery Tests scores represented as national percentile rankings on Harcourt Brace examinations.*

Baron's analysis of districts with sharply improving reading achievement found that the teaching practices common across districts reflect the reforms sought in Connecticut's preservice and inservice professional development initiatives. These practices also mirror those that have been found to be associated with higher NAEP scores (Darling-Hammond, 1997a):

- a balanced approach to reading instruction that combines whole language strategies that emphasize meaning, comprehension, and authentic language use with work on specific skills development;
- use of a wide variety of reading materials, including trade books and children's literature at a range of reading levels matched to students' needs and interests;
- strong connections between reading and writing, including daily writing to develop and assess literacy skills and to foster students' sense of purpose for reading and writing;

- use of classroom-based performance assessments of reading, such as running records and miscue analyses; and
- careful attention to the needs of students having difficulty, including the widespread use of skilled Reading Recovery teachers.

The development and widespread dissemination of effective practice is the difficult task of systemic reform, one that few states have been able to accomplish. We turn in the next and last section to an analysis of how Connecticut's policies have managed to build the capacity statewide to improve teaching and learning.

DISCUSSION: USING POLICY TO TEACH

The story of Connecticut's reforms is one of focused, purposeful capacity building throughout the educational system, driven by pointed attention to teaching quality and the creative use of available state policy levers. The increasingly well-developed statewide infrastructure that has been put in place to encourage quality teaching includes high salaries linked to high standards for preparing for and entering teaching; intensive support and rigorous assessment of beginning teachers; and continued professional development. All of these are then grounded in teaching and learning standards, as well as in student assessments.

These factors have provided the foundation of professional expertise needed to make good on other organizational policies and practices such as analyses of student achievement results, linking school improvement plans and teacher evaluations to student achievement, and providing extra time for reading instruction. All of these are useful but by themselves insufficient strategies for improving the quality of teaching.

Scholars have noted the weak theoretical links between any one of these policies and quality teaching (Cohen and Murnane, 1985; Timar and Kirp, 1987). We believe that the "package" of policies—any one of which is insufficient when used in isolation—helped create a culture that valued teachers and teaching, enabled the acquisition and on-going development of professional knowledge among educators, and held those educators to high standards.

Examined over time, this array of constantly unfolding policies is an unusual story of large scale, iterative, system-wide education statewide reform. Political winds, changing economic circumstances, and shifting demographics often take a toll on educational policy, making the sustained commitment to one conception of reform (no matter how complex) impossible (Tyack & Cuban, 1995). Efforts like the ones described here more often than not get derailed midstream. But such has not been the case in Connecticut, despite its recession in the early 1990s.

This study is limited in its capacity to make empirical claims about what the CSDE did to contribute to this effort. We offer here a hypothesis: Central to the CSDE's success was the design of a system that allowed all participants—beginning teachers and their veteran colleagues, administrators, CSDE staff, teacher educators, legislators, and other elected officials—to learn. Cohen and Barnes (1993) argue:

> To say that most policies and programs entail learning and thus some education is only to make a logical or psychological claim. It tells us nothing about the education that actually was provided. That is our subject here: What kind of education has educational policy offered to enactors? What has been the pedagogy of the policy?

Fisk (1999) describes how Shedd initiated and Tirozzi supported the transformation of the CSDE into a learning organization. By this, she means that CSDE staff saw themselves, individually and collectively, as learners and inquirers. Instead of presuming to have the "answer," CSDE staff did what good teachers do: They established a set of goals (i.e. to improve the quality of teaching and thereby the quality of learning), and they crafted a set of curricular materials (legislative supports, licensing requirements, the CCI, the teaching portfolios). They then crafted a series of educational opportunities based on those materials: preservice reforms, clinics for beginning teachers to learn about the CCI, training sessions for assessors and mentors, a year-long professional support seminar for beginning teachers about their portfolios and about the subject-specific nature of their practice, and so on.

Like good teachers, CSDE staff got these ideas from various places: Some ideas came through deliberations with seasoned educators, such as CSDE teachers-in-residence who worked on the portfolios and CCI and on training sessions for mentors and assessors. Other ideas came through national networks of like-minded people, including the Teacher Assessment Project, INTASC, the National Board for Professional Teaching Standards, and the Council for Chief State School Officers. Studies of other networks (Lieberman & Grolnick, 1996; Lieberman & McLaughlin, 1992; Pennell & Firestone, 1996) attest to the powerful effect of such groups of interacting individuals on professional learning. Ideas were also developed within the agency through the collaborative culture established there.

Policies were seen by CSDE staff as opportunities to stimulate learning. Beginning teachers who do not pass their assessments get feedback from assessors, additional mentor support, and—in the most worrisome cases—district support. Practicing teachers whose students do poorly on statewide examinations receive the data to analyze and resources necessary to propose action plans. The press to do so is then accompanied with resources for the most challenged districts. The "balanced" equation of higher salaries for greater accountability comes with resources: increased opportunities to learn from and improve on experience and the supports to do so.

Meanwhile, CSDE staff also set about learning from their own experiences. Their commitment to data, research, and inquiry foreshadowed the current national trend pressing educators to ground assessments in data. All along, as instruments were being pilot-tested and implemented, the research and evaluation division conducted validity and reliability studies that were then, in turn, critically used in the redesign of policy. Staff members presented their analyses and experiences to policymakers, parents, and researchers, locally and nationally. They invited criticism and commentary, and they willingly tinkered with or transformed practices that were ineffective or inefficient.

This kind of pedagogical stance—of inquiring instead of pronouncing, of encouraging dialogue rather than silencing participants—is strikingly different from most policy implementation, as Cohen and Barnes (1993) explain:

> The pedagogy of educational policy has been didactic and inconsistent. Policymakers have told teachers to do many different, hugely important things in a short time. And in each case, policymakers have acted as though their assignment was to dispense answers, not to provoke thought, ask questions, or generate discussion. The pedagogy of policy has been teacher-centered. As policymakers taught, they created few opportunities to listen as schoolteachers and other educators tried to make sense of new demands. Nor have policymakers cast policy as something that might be revised in light of what they learned from teachers' experience (pp. 226-227)

The CSDE staff assumed a very different pedagogical posture. Providing draft instruments and support mechanisms, they constantly found ways to tinker with their policies, revising them in the light of participants' experiences, much like the learning teacher revises her curriculum based on what happened to her well-laid instructional plans. In so doing, we argue, they built both CSDE capacity and that of the professional ranks of Connecticut educators.

So, if the CSDE was teaching, what was being learned? And who was learning? Clearly, the CSDE staff learned, as reflected in their constant revisions of the policy system and the instruments used for support and assessment. Meanwhile, beginning teachers were being taught several things: That professional teachers in Connecticut would be held to high standards both by the CSDE and by their more experienced peers. That teaching in Connecticut meant more than simply the mastery of basic skills. That, as new teachers, they had an obligation to both document and reflect on their practice. That they were expected to continue learning, long after the completion of their teacher preparation program. And that there was an expectation in Connecticut that all educators would share a language about practice and a set of norms for discourse. Experienced educators were also brought into a professional discourse about practice. Armed with tools like the CCI and portfolio evaluation rubrics, seasoned educators learned to talk critically about practice, to open their classroom doors, to take responsibility both for the support of new teachers, and for holding all teachers to a professional standard.

This study investigated the CSDE and did not examine the implementation of its reforms. Research would predict considerable variation, for local actors always adapt policies to fit the needs and exigencies of their work (McLaughlin, 1976; Elmore & McLaughlin, 1988). Indeed, such adaptation is not only predictable, but also necessary. Research on the implementation of the induction program in two urban Connecticut districts illustrates this variation. In Stamford, new teachers reported to researchers that their mentors were well trained and that they, as new teachers, generally felt well supported (Frelow, Fisher, and Dylan, 1999). In New Haven, the induction policy is in place, but the actors vary in their understanding of its content and purposes. Mentors were carefully trained by the state, but novices' experiences varied widely. Some did not have stable appointments or their own classroom, and creating a portfolio that presumed continuity of assignment was challenging. Other novices were expected to take on school leadership roles immediately for, as is often the case in urban schools, many of the teachers were inexperienced. Still others seldom saw mentors, who were themselves swallowed up by their obligations as full time teachers. As the researchers note:

> Looking at Connecticut's well-regarded program gives us an opportunity to learn more about how state-level policies, programs, and standards can work together to promote educational reform and increase teaching quality. At the same time we need to study programs at their level of implementation because this is where programs turn policy into practice. We need to learn what is missing, where the loose connections lie, and what beginning teachers are actually able to handle (Feiman-Nemser, Schwille, S., Carver, C., Katz, D., Smith, E., & Yusko, B., 2000, p. 60).

Fortunately, research on the role of districts in mediating policies is emerging (Spillane, 1996; Spillane & Thompson, 1997), alongside a parallel literature on the role of state departments in creating and sustaining effective policies and practices (Lusi, 1999; Fisk, 1999). These literatures tell similar stories about the importance and difficulty of organizational capacity building. For example, Lusi's study of education reforms of the 1980s and '90s and the attendant problems facing state departments of education (SDEs) focused on Vermont and Kentucky. She argued that the

implementation of complex school reform requires that SDEs re-focus their work on building organizational capacity and flexibility, as well as building local capacity and collaborative, external connections. The task is daunting:

> The state's problem then, (and the SDE's problem as the agent of the state) is complicated. Not only is the state trying to change the practice of a large number of practitioners over whom it has little control and no proximity; in addition, it is trying to make this change in a profession where good practice is nearly impossible to clearly specify and in an environment in which it is difficult to predict the effect of its actions. Even if good teaching practice can be more clearly specified, it is not clear that the SDE will be able to bring that kind of practice about (Lusi, 1999, p. 11).

Fisk (1999), an insider to the work of the Connecticut State Department of Education, combined interviews and her own participant observation in a comparative analysis of several Connecticut reforms. She, too, found contemporary school reform complex. She argues that Connecticut's success was largely due to the CSDE's staff acting as "bureaucratic entrepreneurs":

> . . . bringing forth new ideas, mobilizing resources, and exercising leadership to alter existing educational policies and institutional structures. As the Connecticut case study suggests, bureaucratic activism in policy-making and the development of policy innovation emerged because of three factors: leadership, the building of capacity within the agency so that new ideas and technologies to shape public policy could be brought forth, and empowerment of agency personnel to act as leaders at all levels of the agency (p. 144).

Students of educational policy and reform would also point out that the CSDE was able to do this in no small way because of its considerable expertise and autonomy. The governor was not trying to wrest control of education out of the hands of the CSDE, nor was the legislature blocking the staff's efforts. In our fragmented U. S. educational system (Cohen & Spillane, 1992; Cusick, 1992; Timar, 1997), it is hard for state departments to find a foothold, not to mention the sustained support and resources necessary to do "steady work" (Elmore & McLaughlin, 1988). As Timar (1997) notes:

> Within this fragmented system, it becomes quite difficult to locate authority and responsibility. What is missing is an institutional center that coalesces disparate interests and provides coherence to the educational system (p. 254).

Connecticut's SDE did just that: Taking advantage of the considerable leverage provided by a consistent bipartisan policy focus, the CDE's innovative and expert staff provided coherence for Connecticut's educational system. Furthermore, the process was granted the gift of time, so that state department staff and collaborating teachers across the state were able to see what worked and what did not. As Elmore and McLaughlin (1988) note:

> If earlier reforms have anything to tell us, it is that time is the essential ingredient in any reform and that the function of time is to provide opportunities to accommodate, adjust, and adapt administration and practice to policy . . . [This] means commissioning real people who work in schools to fashion workable solutions to real problems and allowing those solutions the opportunity to fail and the time to succeed (pp. 60-61).

As Connecticut encountered waves of reform, it built on the old to create new strategies that drew from and extended their precedents while constructing a more comprehensive system. Experienced educators participated at every critical juncture: drafting standards and curriculum frameworks, assessing and mentoring new teachers, and participating in (and sometimes leading) meaningful, targeted professional development. Throughout, the state department orchestrated research and evaluation of all relevant programs and policies, using feedback from interviews, surveys, and validation studies to adjust and sometimes substantially alter the policy system.

We have no doubt that more changes in the Connecticut policy system are on the horizon. If we are correct in our hypothesis that the policies facilitated considerable learning on the part of CSDE staff, teachers, administrators, school board members and others, the reforms should continue to unfold, for teachers who have reformed their practice often report that they "can't go back" (e.g., Wilson, Yerkes, & Miller, 1993).

Future research on Connecticut's teaching quality programs is important, for the sweep of these efforts and their potentially deep intervention on the development of practice hold promise for even greater reform over time. With the state's new efforts to strengthen the pre-service components of the system still further, to tie teaching standards more directly to student standards, and to build the leadership capacity of Connecticut teachers through NBPTS certification and other strategies for professional growth, the impact of these kinds of policies is likely to increase into the twenty-first century. Following this unfolding policy story through the years ahead will provide a rich case for understanding how reforms designed to be educative for all participants—reforms that are allowed to adapt and then succeed—can lay the groundwork for steady progress toward the goal of a high quality education for all students in the United States.

ENDNOTES

[1] For a more detailed story of Connecticut's history of schol reform, see Fisk (1999).

[2] These components were not static because the CSDE continually tested instruments, revised them, and replaced them with more efficient and effective tools. We capture some but not all of these changes in our descriptions.

[3] A more complete report is available in Frederick Frelow, Heidi Fisher, and Dylan Johnson, Stamford Public Schools 1st Interim Report: Status of Teaching Study, Induction. NY: National Commission on Teaching and America's Future.

[4] Science and mathematics portfolio assessments were implemented on a pilot basis in 1996; el ıentary, English, music, physical education, social studies, and special education were then phased in between 1997 and 1999. By the year 2000, most beginning teachers were included in the portfolio assessments.

[5] While the system is evolving, three forms of BEST participation currently co-exist. First there is the Portfolio Induction Program, a two- or three-year program of support and assessment for teachers of elementary education, ELA, mathematics, music, physical education, science, social studies, special education, visual arts, and world language. Second, there is the CCI Induction Program, a one- or two-year program of support and assessment for teachers of bilingual education, business education, health, home economics, technology education, TESOL, and vocational agriculture, partically sighted, hearing impaired, blind, marketing education, remedial reading and remedial language arts, occupational trades-related subjects in vocational-technical schools, and occupational and trade-related subjects in comprehensive high schools.

[6] See Appendix A for the full set of goals and expectations.

APPENDIX A

Goal	Expectations
To set and meet high expectations for academic achievement for all students in order to prepare them for education and responsible citizenship.	• All students will demonstrate no less than mastery in reading, writing, and mathematics by Grade 4 as measured by the mastery standards of the Connecticut Mastery Test (CMT). • All students will have access to and complete a rigorous curriculum in core areas of study, including language arts, science, mathematics, social studies, the arts, foreign language, health and physical education, and technology. • There will be continuous improvement in student academic performance in all core areas of study, as measured in part by the Connecticut Master Test (CMT) and an increase in high school graduation rates. • All students will develop the skills, knowledge, and attitudes necessary for the successful transition from school to career, lifelong learning, and productive citizenship. • All students will assume responsibility for learning, for their behavior, and for sowing respect and fairness toward others in their communities. • Parents and families will assume greater responsibility for helping students achieve at high levels by becoming involved in their children's education. • All adults will have access to literacy programs and programs to achieve basic academic competencies, complete a high school diploma program, and upgrade job-related skills necessary for gainful employment and full participation in civic life.
To create the optimal environment for learning by meeting the fundamental needs of all learners.	• All children will have access to comprehensive and developmentally appropriate early childhood education and care and will enter school ready to learn. • All Connecticut schools will offer learning experiences that recognize and value diversity as an integral part of a high-quality education. • All students will attend school in a safe, orderly, disciplined, and drug-free environment. • All students will be served by a unified system of regular, special, compensatory, and other programs.
To set and meet high standards for the performance of teachers and administrators leading to and evidenced by improved student learning.	• The professional preparation and certification of Connecticut educators will reflect clear and widely accepted definitions of the knowledge and competencies needed by teachers and administrators to ensure that students will achieve at high levels. • There will be ongoing and systematic assessment and improvement of teacher and principal evaluation and professional development practices that relate to districts' educational goals for students. • All educators will have access to substantive, appropriate professional development activities that promote the continuous improvement and modification of instruction leading to the success of all students.

(continued on next page)

APPENDIX A (cont.)

Goal	Expectations
To focus resources effectively, efficiently, and equitably in order to ensure that all students achieve at high levels.	• The quality, availability, and cost-effectiveness of educational and related health and social services provided to students and their families will be improved. • Every teacher and student will have full access to a technology-rich learning and information environment, and teachers and administrators will be trained to improve teaching and student learning. • Schools will make more productive use of the existing school day and school year for students and staff members and will examine ways to increase time for teaching and learning. • The impact of poverty on the educational achievement of children will be reduced, and student achievement in low-performing districts will be increased while ensuring that there will be no ceilings or watering down of expectations for the highest-performing students. • School districts will make more productive use of existing resources and facilities and promote schools as centers of community activity. • There will be an increase in the number of initiatives that enhance Connecticut's sense of community by sharing and exchanging education resources, staff members, and students among urban, suburban, and rural school districts.
To increase the direct involvement of all citizens in public education.	• Parents, families, community members, business, social service agencies, and others will assume a more active role in improving public education in their communities. • The public will be engaged in an ongoing exchange of information and ideas about state and local progress in meeting student learning goals.

(Connecticut State Board of Education, 1997)

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